

# Texas Water Development Board



# WATER Conditions

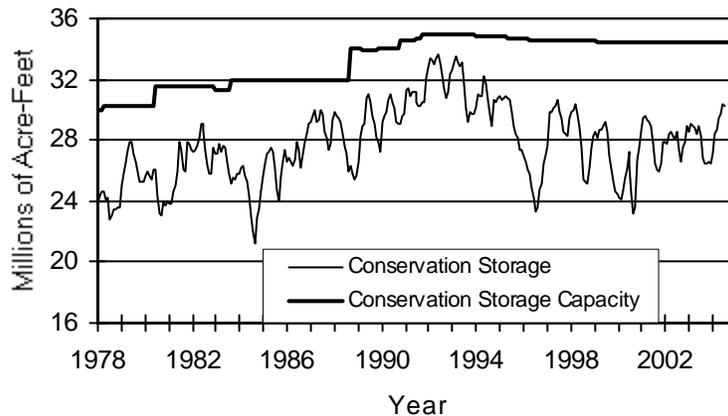
## RESERVOIR STORAGE

July 2004

Near the end of July, the 77 reservoirs monitored for this report held 30.24 million acre-feet in conservation storage, or 88 percent of the conservation storage capacity of the state's major reservoirs. Statewide total storage is at normal for this time of year. Storage decreased during the month by 178,680 acre-feet (1% of conservation storage capacity). Compared to the previous year, storage is greater, up 1,964,180 acre-feet (6%).

Storage is at capacity in the Upper Coast and South Central Regions, near capacity in the North Central (94%) and the East (98%) Regions, while the High Plains (26%) and Trans-Pecos (22%) Regions remained lower than one-third. Storage is at 100% in 29 reservoirs. Compared to this time last year, the Southern Region had the largest increase in storage (+19%), while the Low Rolling Plains had the steepest decline (-7%).

### CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS



Current data are based on elevation near end of month at 77 reservoirs that represent 98 percent of total conservation storage capacity in Texas reservoirs having a capacity of 5,000 acre-feet or more.

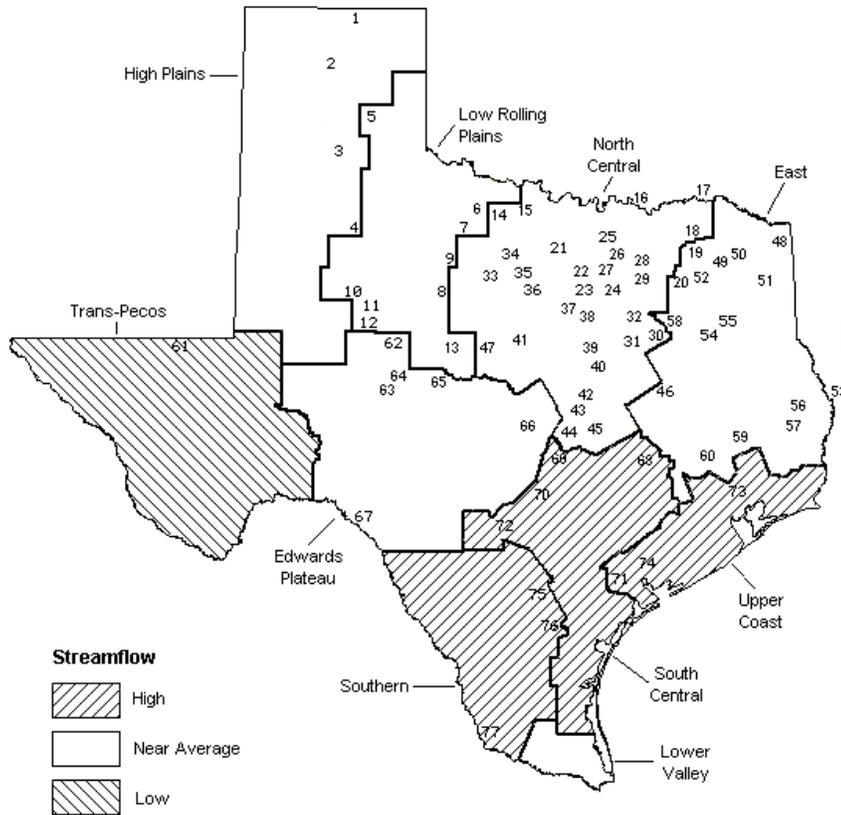
# STREAMFLOW

Of 29 reporting index stations in July, computed 30-day mean flows were very high (0% - 5% exceedance) at 2 stations, high (5% - 30% exceedance) at 13 stations, near normal (30% - 70% exceedance) at 10 stations, and low (70 - 95%) at 4 stations. In comparison to June, flows increased at 8 index stations, decreased at 20, and remained un-changed at 1 station.

On a regional basis, flows in July were high in the South Central, Upper Coast, and Southern Regions, low in the Trans-Pecos Region, and near normal everywhere else.

## JULY STREAMFLOW CONDITIONS

Reservoirs Shown on Map



- |                                  |                             |
|----------------------------------|-----------------------------|
| 1. Palo Duro Reservoir           | 40. Waco Lake               |
| 2. Lake Meredith                 | 41. Proctor Lake            |
| 3. MacKenzie Reservoir           | 42. Belton Lake             |
| 4. White River Lake              | 43. Stillhouse Hollow Lake  |
| 5. Greenbelt Reservoir           | 44. Lake Georgetown         |
| 6. Lake Kemp                     | 45. Granger Lake            |
| 7. Miller's Creek Reservoir      | 46. Lake Limestone          |
| 8. Fort Phantom Hill Reservoir   | 47. Lake Brownwood          |
| 9. Lake Stamford                 | 48. Wright Patman Lake      |
| 10. Lake J. B. Thomas            | 49. Lake Cypress Springs    |
| 11. Lake Colorado City           | 50. Lake Bob Sandlin        |
| 12. Champion Creek Reservoir     | 51. Lake O' the Pines       |
| 13. Hords Creek Lake             | 52. Lake Fork Reservoir     |
| 14. Lake Kickapoo                | 53. Toledo Bend Reservoir   |
| 15. Lake Arrowhead               | 54. Lake Palestine          |
| 16. Lake Texoma                  | 55. Lake Tyler              |
| 17. Pat Mayse Lake               | 56. Sam Rayburn Reservoir   |
| 18. Cooper Lake                  | 57. B. A. Steinhagen Lake   |
| 19. Lake Sulphur Springs         | 58. Cedar Creek Reservoir   |
| 20. Lake Tawakoni                | 59. Lake Livingston         |
| 21. Bridgeport Reservoir         | 60. Lake Conroe             |
| 22. Eagle Mountain Reservoir     | 61. Red Bluff Reservoir     |
| 23. Benbrook Lake                | 62. E. V. Spence Reservoir  |
| 24. Joe Pool Lake                | 63. Twin Buttes Reservoir   |
| 25. Ray Roberts Lake             | 64. O. C. Fisher Lake       |
| 26. Lewisville Lake              | 65. O. H. Ivie Reservoir    |
| 27. Grapevine Lake               | 66. Lake Buchanan           |
| 28. Lavon Lake                   | 67. Intl. Amistad Reservoir |
| 29. Lake Ray Hubbard             | 68. Somerville Lake         |
| 30. Richland-Chambers Creek Lake | 69. Lake Travis             |
| 31. Navarro Mills Lake           | 70. Canyon Lake             |
| 32. Bardwell Lake                | 71. Coletto Creek Reservoir |
| 33. Hubbard Creek Reservoir      | 72. Medina Lake             |
| 34. Lake Graham                  | 73. Lake Houston            |
| 35. Possum Kingdom Lake          | 74. Lake Texana             |
| 36. Lake Palo Pinto              | 75. Choke Canyon Reservoir  |
| 37. Lake Granbury                | 76. Lake Corpus Christi     |
| 38. Lake Pat Cleburne            | 77. Intl. Falcon Reservoir  |
| 39. Whitney Lake                 |                             |

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late July 2004 (acre-feet)	(%)	Change since Late June 2004 (acre-feet)	(%)	Change since Late July 2003 (acre-feet)	(%)
<b>HIGH PLAINS</b>								
Palo Duro Reservoir	1	60,900	6,210	10	-940	-2	2,150	4
Lake Meredith (Texas)	2	500,000	143,660	29	4,650	1	-21,990	-4
Lake Meredith (Texas and Oklahoma)	(2)	779,560	143,660	18	4,650	1	-21,990	-3
MacKenzie Reservoir	3	46,250	7,540	16	-20	0	640	1
White River Lake	4	31,850	6,950	22	300	1	-660	-2
<b>TOTAL</b>		<b>639,000</b>	<b>164,360</b>	<b>26</b>	<b>3,990</b>	<b>1</b>	<b>-19,860</b>	<b>-3</b>
<b>LOW ROLLING PLAINS</b>								
Greenbelt Reservoir	5	58,200	23,610	41	-610	-1	660	1
Lake Kemp	6	319,600	172,280	54	-7,680	-2	-42,080	-13
Miller's Creek Reservoir	7	27,890	14,310	51	3,660	13	-550	-2
Fort Phantom Hill Reservoir	8	70,030	31,170	45	-450	-1	-7,990	-11
Lake Stamford	9	52,700	32,060	61	-1,600	-3	-6,050	-11
Lake J. B. Thomas	10	202,300	21,260	11	-350	0	-720	0
Lake Colorado City	11	30,800	21,730	71	-420	-1	2,610	8
Champion Creek Reservoir	12	41,600	3,240	8	20	0	240	1
Hords Creek Lake	13	8,600	2,780	32	10	0	680	8
<b>TOTAL</b>		<b>811,720</b>	<b>322,440</b>	<b>40</b>	<b>-7,420</b>	<b>-1</b>	<b>-53,200</b>	<b>-7</b>
<b>NORTH CENTRAL</b>								
Lake Kickapoo	14	106,000	66,310	63	11,670	11	-8,330	-8
Lake Arrowhead	15	262,100	126,800	48	10,220	4	-12,080	-5
Lake Texoma	16	2,722,300	2,709,770	100	18,340	1	104,310	4
Pat Mayse Lake	17	124,500	117,110	94	-3,360	-3	2,100	2
Cooper Lake	18	273,000	198,420	73	-8,110	-3	-74,580	-27
Lake Sulphur Springs	19	17,710	16,650	94	-590	-3	-590	-3
Lake Tawakoni	20	936,200	872,200	93	-19,100	-2	18,400	2
Bridgeport Reservoir	21	374,830	339,000	90	4,500	1	49,200	13
Eagle Mountain Reservoir	22	178,380	173,900	97	-4,480	-3	30,900	17
Benbrook Lake	23	88,200	81,790	93	-6,410	-7	5,830	7
Joe Pool Lake	24	175,800	175,800	100	0	0	230	0
Ray Roberts Lake	25	798,760	798,760	100	0	0	28,400	4
Lewisville Lake	26	555,000	555,000	100	0	0	0	0
Grapevine Lake	27	187,700	187,700	100	0	0	14,510	8
Lavon Lake	28	443,800	441,190	99	-1,260	0	38,240	9
Lake Ray Hubbard	29	413,420	407,200	98	8,000	2	18,700	5
Richland-Chambers Creek Lake	30	1,103,820	1,103,820	100	0	0	0	0
Navarro Mills Lake	31	55,810	55,810	100	0	0	3,100	6
Bardwell Lake	32	53,580	46,980	88	-3,650	-7	820	2
Hubbard Creek Reservoir	33	317,800	127,220	40	-5,470	-2	-12,780	-4
Lake Graham	34	45,000	25,860	57	2,970	7	-1,490	-3
Possum Kingdom Lake	35	551,820	460,000	83	-9,200	-2	-25,200	-5
Lake Palo Pinto	36	27,650	20,840	75	200	1	3,560	13
Lake Granbury	37	135,680	133,700	99	1,200	1	400	0
Lake Pat Cleburne	38	25,300	25,300	100	0	0	2,180	9
Whitney Lake	39	622,800	619,890	100	-2,910	0	164,030	26
Waco Lake	40	144,500	144,500	100	0	0	4,500	3
Proctor Lake	41	55,590	53,900	97	-1,690	-3	3,470	6
Belton Lake	42	434,500	434,500	100	0	0	6,310	1
Stillhouse Hollow Lake	43	226,060	226,060	100	0	0	950	0
Lake Georgetown	44	37,010	36,360	98	600	2	3,860	10
Granger Lake	45	54,280	54,280	100	0	0	690	1
Lake Limestone	46	215,750	211,400	98	-4,350	-2	3,000	1
Lake Brownwood	47	143,400	127,500	89	-4,070	-3	-1,020	-1
<b>TOTAL</b>		<b>11,908,050</b>	<b>11,175,520</b>	<b>94</b>	<b>-16,950</b>	<b>0</b>	<b>371,620</b>	<b>3</b>

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late July 2004 (acre-feet) (%)	Change since Late June 2004 (acre-feet) (%)	Change since Late July 2003 (acre-feet) (%)
<b>EAST</b>					
Wright Patman Lake	48	142,700	142,700 100	0 0	0 0
Lake Cypress Springs	49	66,800	66,800 100	0 0	1,330 2
Lake Bob Sandlin	50	202,300	201,800 100	-500 0	7,400 4
Lake O' the Pines	51	252,000	252,000 100	0 0	21,840 9
Lake Fork Reservoir	52	635,200	635,200 100	0 0	22,000 3
Toledo Bend Reservoir	53	4,472,900	4,358,000 97	-114,900 -3	269,000 6
Lake Palestine	54	411,300	405,270 99	-6,030 -1	5,270 1
Lake Tyler	55	73,700	73,700 100	0 0	0 0
Sam Rayburn Reservoir	56	2,876,300	2,874,410 100	-1,890 0	65,530 2
B. A. Steinhagen Lake	57	94,200	69,160 73	-17,690 -19	-25,040 -27
Cedar Creek Reservoir	58	637,050	622,900 98	-14,150 -2	6,800 1
Lake Livingston	59	1,750,000	1,744,000 100	-6,000 0	-5,000 0
Lake Conroe	60	429,900	410,600 96	-19,300 -4	-200 0
<b>TOTAL</b>		<b>12,044,350</b>	<b>11,856,540 98</b>	<b>-180,460 -1</b>	<b>368,930 3</b>
<b>TRANS-PECOS</b>					
Red Bluff Reservoir	61	307,000	68,300 22	660 0	13,860 5
<b>TOTAL</b>		<b>307,000</b>	<b>68,300 22</b>	<b>660 0</b>	<b>13,860 5</b>
<b>EDWARDS PLATEAU</b>					
E. V. Spence Reservoir	62	488,760	41,890 9	-2,270 0	-13,560 -3
Twin Buttes Reservoir	63	177,800	4,890 3	-570 0	-200 0
O.C. Fisher Lake	64	119,200	1,890 2	-330 0	-2,090 -2
O. H. Ivie Reservoir	65	554,340	173,780 31	-8,660 -2	-37,020 -7
Lake Buchanan	66	896,980	853,030 95	-21,970 -2	28,090 3
Amistad Reservoir (Texas)	67	1,771,030	1,674,000 95	40,000 2	725,000 41
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,888,000 60	56,000 2	709,000 22
<b>TOTAL</b>		<b>4,008,110</b>	<b>2,749,480 69</b>	<b>6,200 0</b>	<b>700,220 17</b>
<b>SOUTH CENTRAL</b>					
Somerville Lake	68	155,060	155,060 100	0 0	0 0
Lake Travis	69	1,144,100	1,144,100 100	0 0	115,400 10
Canyon Lake	70	385,600	385,600 100	0 0	450 0
Coletto Creek Reservoir	71	35,060	31,770 91	410 1	540 2
Medina Lake	72	254,000	254,000 100	0 0	3,900 2
<b>TOTAL</b>		<b>1,973,820</b>	<b>1,970,530 100</b>	<b>410 0</b>	<b>120,290 6</b>
<b>UPPER COAST</b>					
Lake Houston	73	128,860	128,860 100	0 0	0 0
Lake Texana	74	157,900	157,270 100	-110 0	1,320 1
<b>TOTAL</b>		<b>286,760</b>	<b>286,130 100</b>	<b>-110 0</b>	<b>1,320 0</b>
<b>SOUTHERN</b>					
Choke Canyon Reservoir	75	695,260	692,000 100	-3,000 0	2,000 0
Lake Corpus Christi	76	241,240	241,240 100	0 0	0 0
Falcon Reservoir (Texas)	77	1,555,120	714,000 46	18,000 1	459,000 30
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	1,673,000 63	53,000 2	1,267,000 48
<b>TOTAL</b>		<b>2,491,620</b>	<b>1,647,240 66</b>	<b>15,000 1</b>	<b>461,000 19</b>
<b>STATE TOTAL</b>		<b>34,470,430</b>	<b>30,240,540 88</b>	<b>-178,680 -1</b>	<b>1,964,180 6</b>

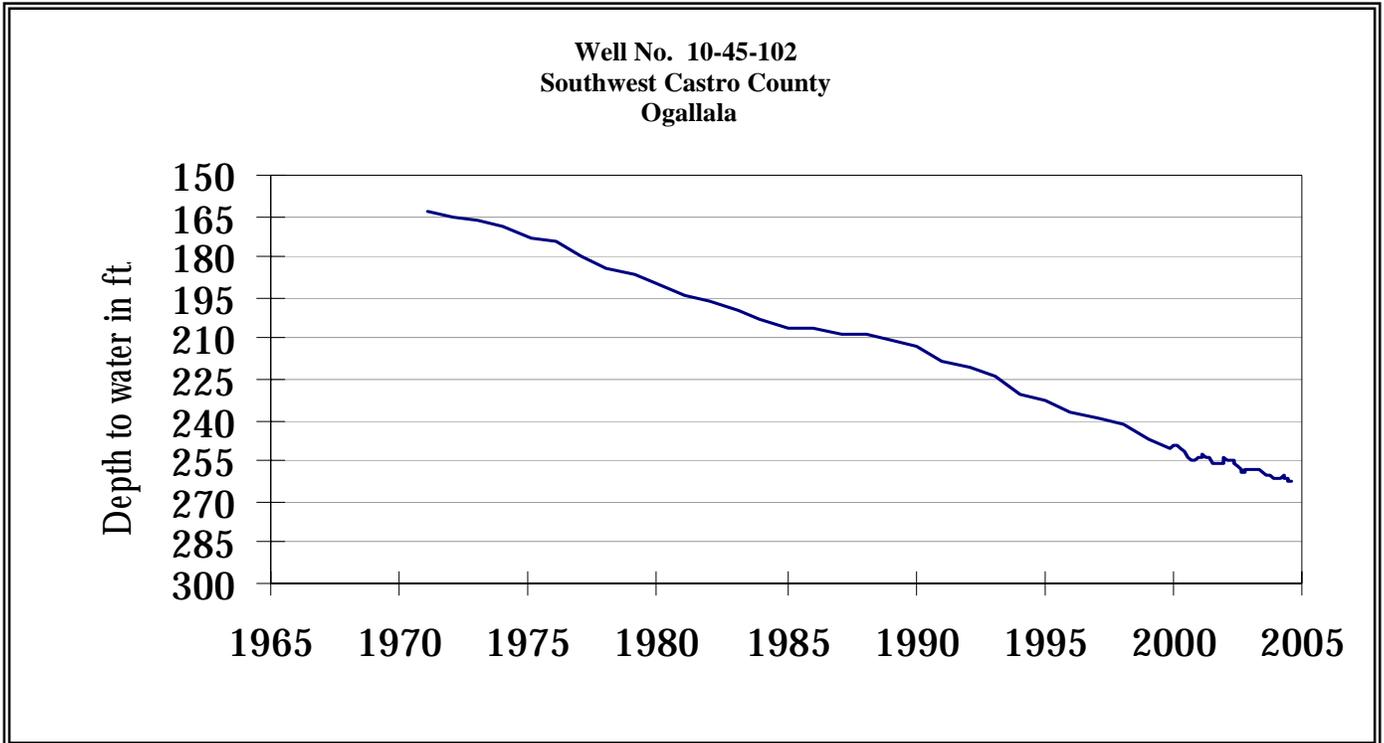
**Note:**

Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included is any water in flood control storage (above the top of conservation pool or normal maximum operating level), or any water in so called dead storage (in the bottom of the reservoir, below the invert of lowest outlet works and consequently

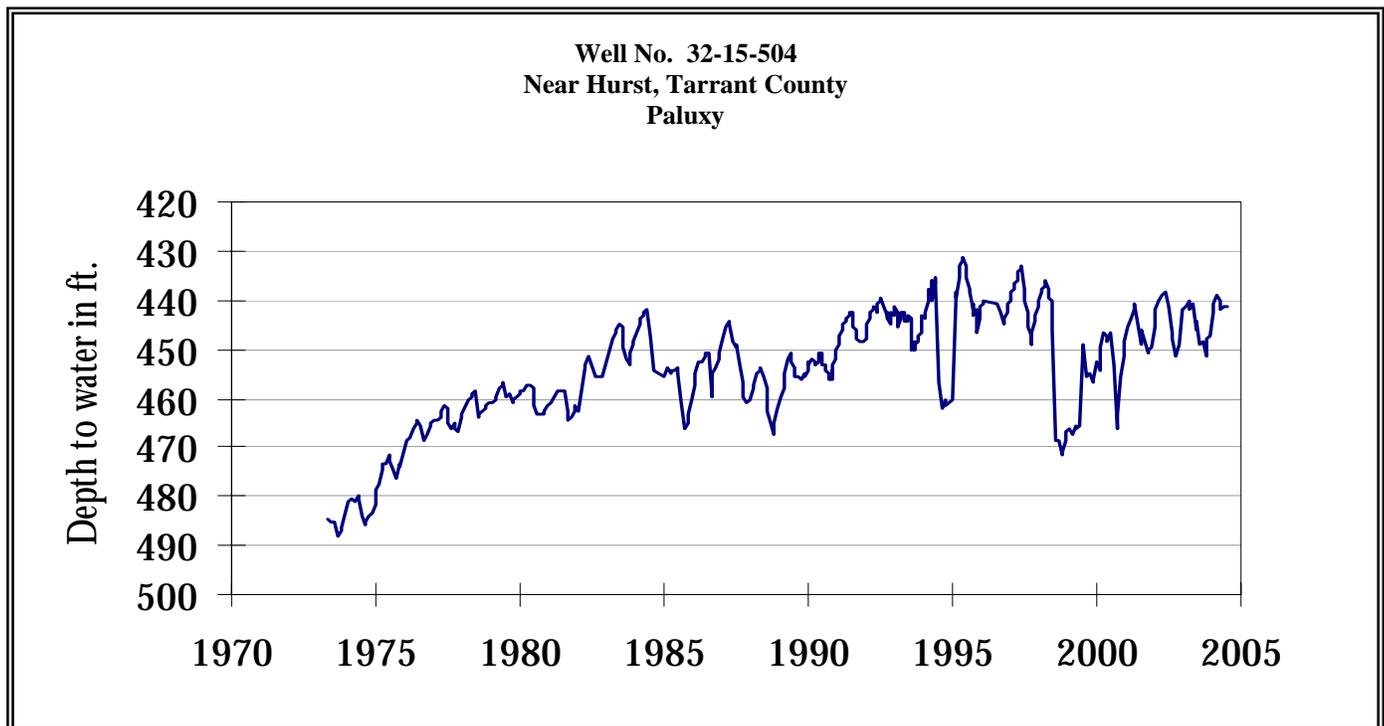
not removable by gravity flow alone.) Percentage of conservation storage is based on the conservation storage capacity of the reservoir and the conservation storage in the reservoir for date shown. Percent change is given by  $\% \text{ Change} = 100 * (\text{current conservation storage} - \text{past conservation storage}) / \text{conservation storage capacity}$ .

Current data are based on elevations near end of month at 77 reservoirs that together represent 98 percent of the total conservation storage capacity of major Texas reservoirs (those with capacity of 5,000 acre-feet or more each). Preliminary figures are shown for the Texas' share of conservation storage in all reservoirs.

## JULY GROUND WATER LEVELS IN OBSERVATION WELLS

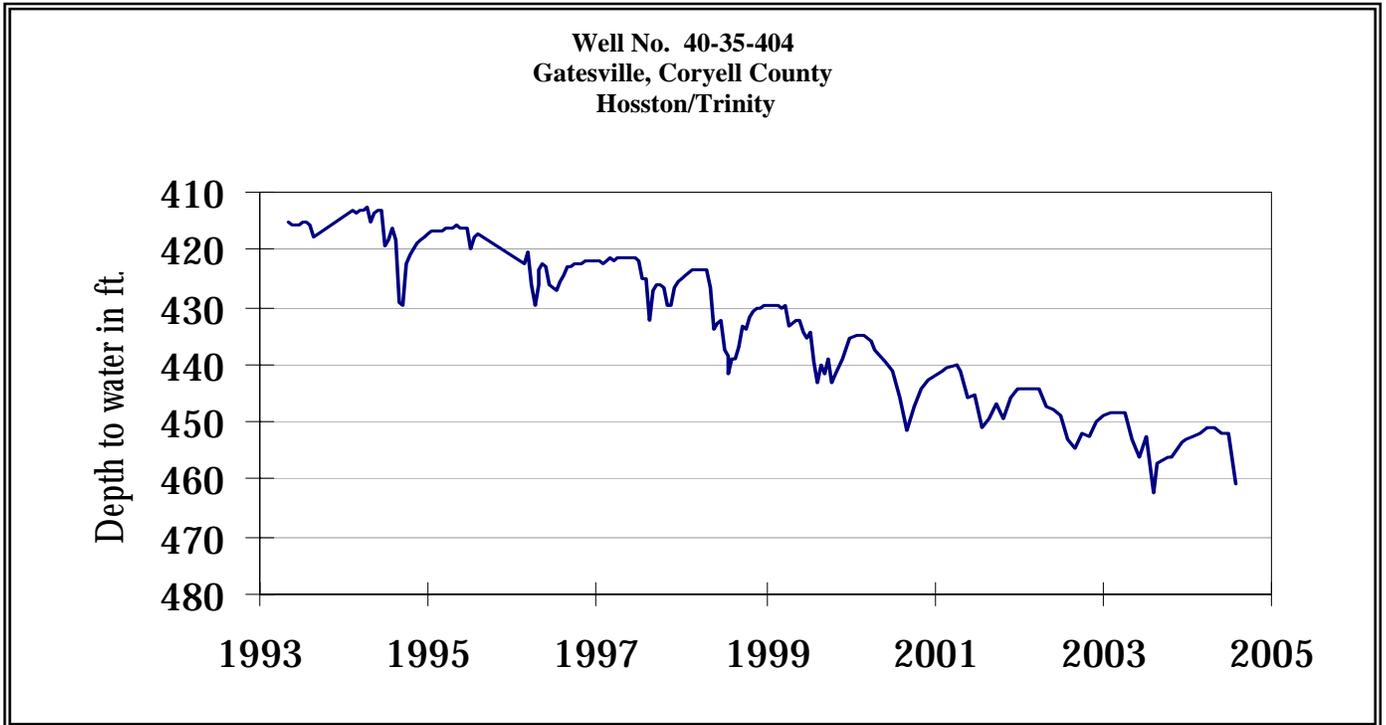


The late July water-level measurement in this Ogallala aquifer well, elevation 3,816 feet above sea level, was 263.00 feet below land surface. This measurement was 0.60 foot below last month's measurement, 3.10 feet below last year's measurement, and 107.00 feet below the initial measurement recorded in 1968.

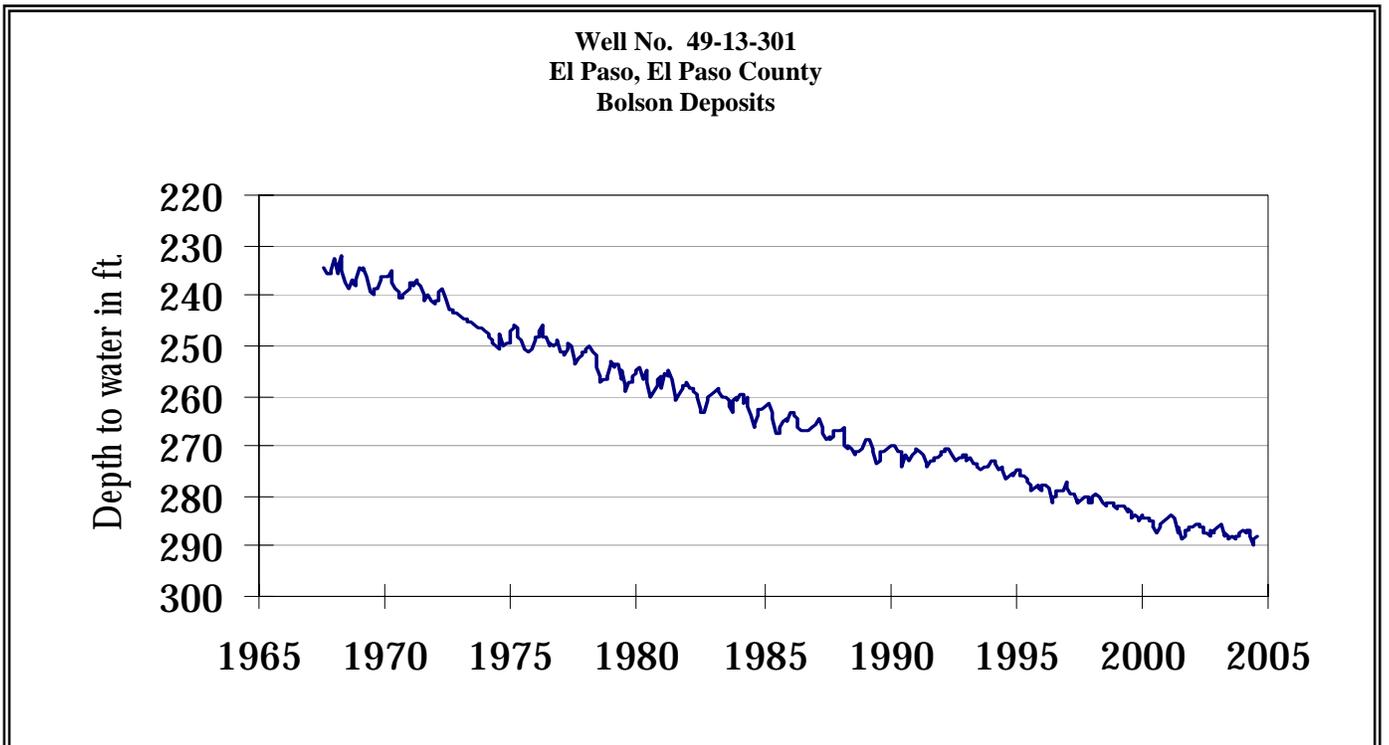


The late July water-level measurement in this Paluxy Formation Trinity aquifer well, elevation 535 feet above sea level, was 441.20 feet below land surface. This measurement was 0.30 feet above last month's

measurement, 7.80 feet above last year's measurement, and 47.81 feet below the initial measurement recorded in 1953.

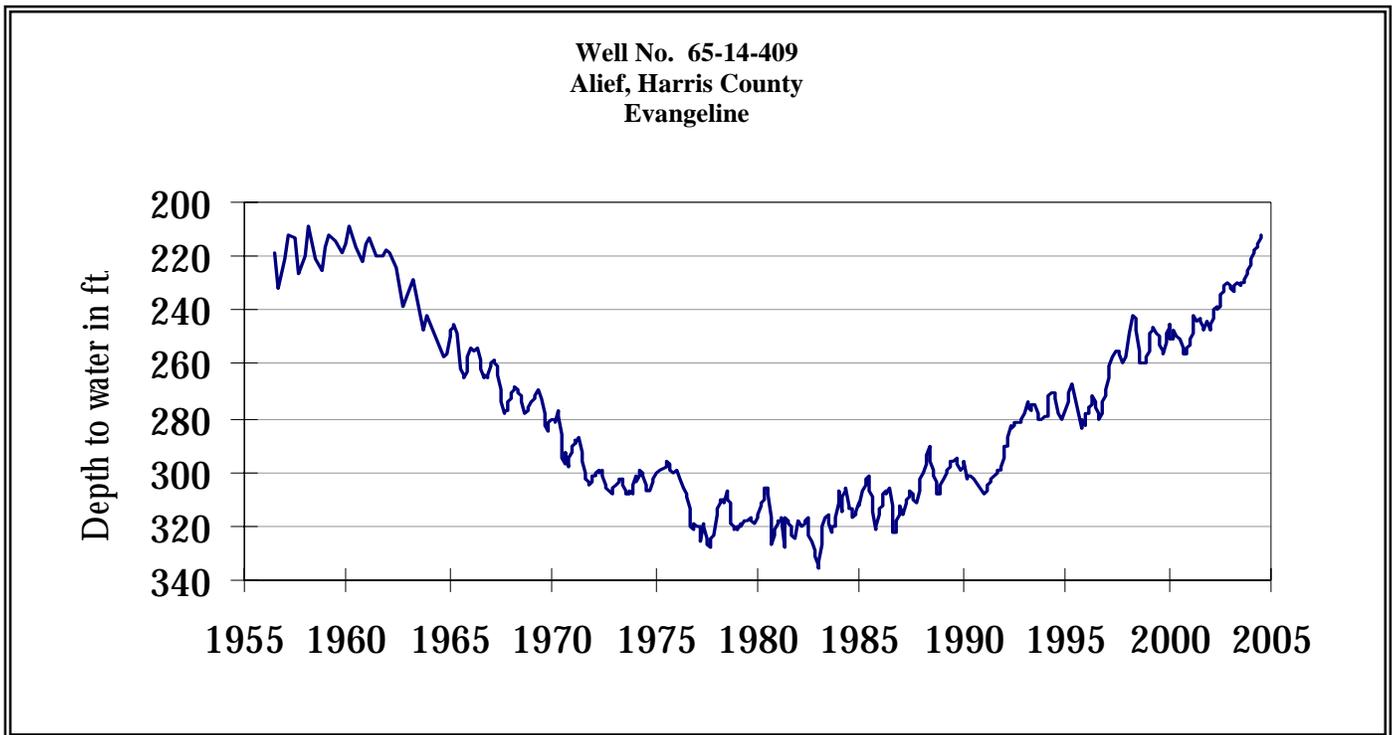


The late July water-level measurement in this Hosston Formation Trinity aquifer well, elevation 823 feet above sea level, was 460.60 feet below land surface. This water level was 8.50 below last month's measurement, 1.70 feet above last year's measurement, and 168.60 feet below the initial measurement recorded in 1955.

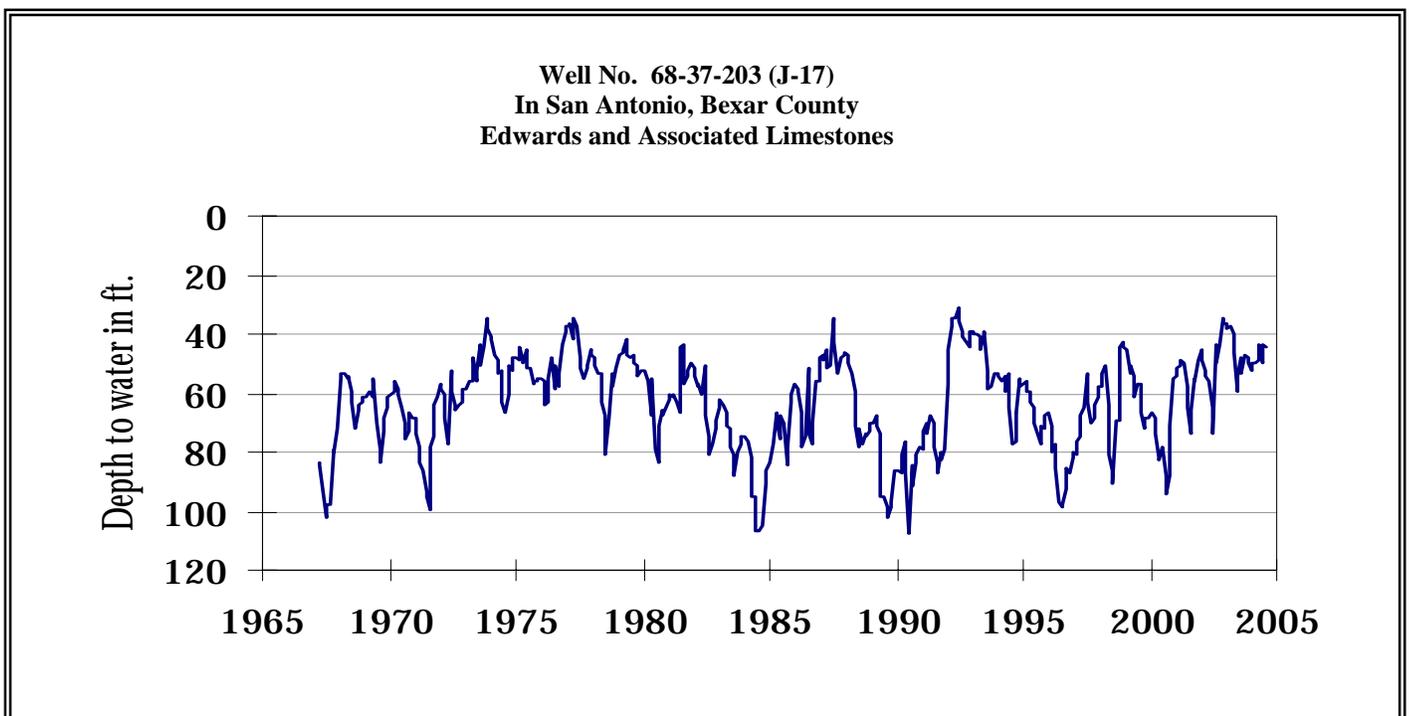


The late July water-level measurement in this Hueco Bolson aquifer well, elevation 3,882 feet above sea level, was 287.90 feet below land surface. This was 0.90 foot above last month's measurement, this water

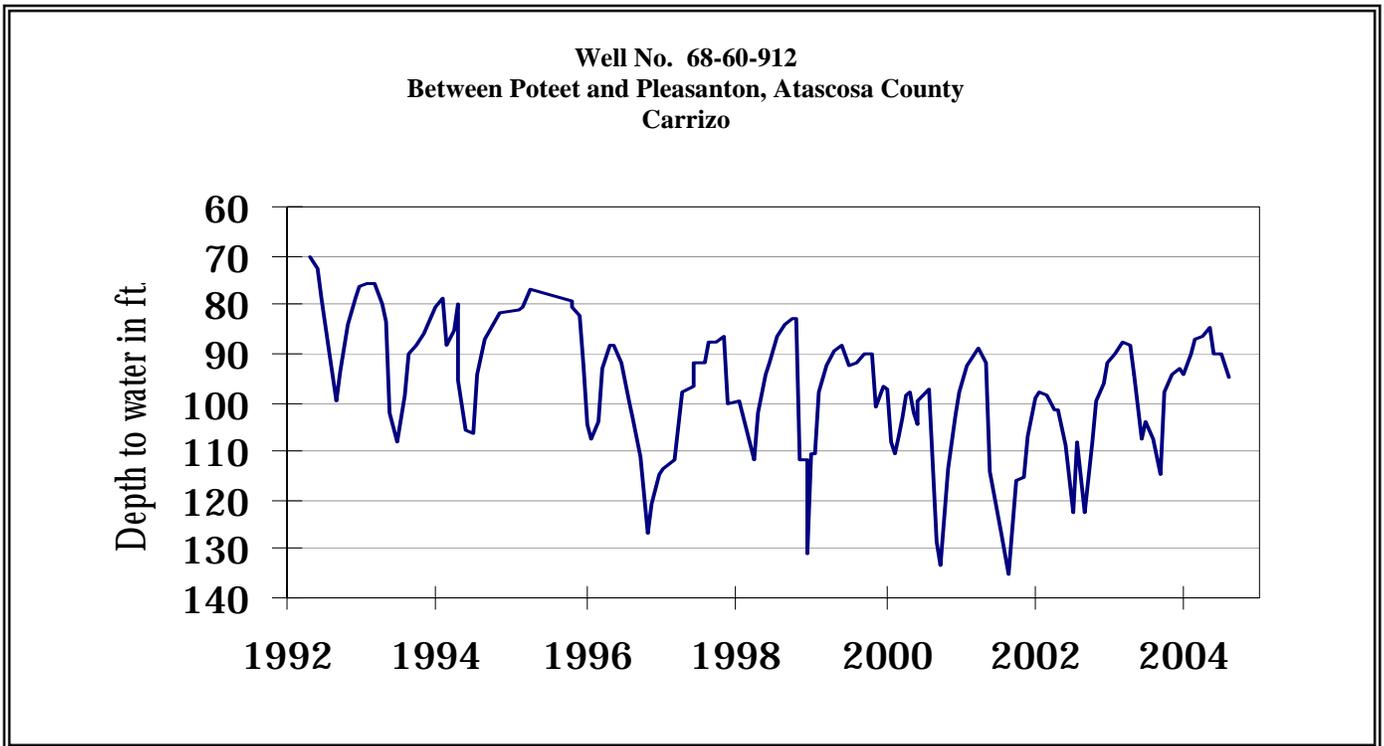
level depth is the same as last year's measurement, and 56.00 feet below the initial measurement recorded in 1964.



The late July water-level measurement in this Evangeline Formation Gulf Coast aquifer well, elevation 66 feet above sea level, was 212.00 feet below land surface. This was 0.90 foot above last month's measurement, 17.60 feet above last year's measurement, and 108.77 feet below the initial measurement recorded in 1947.

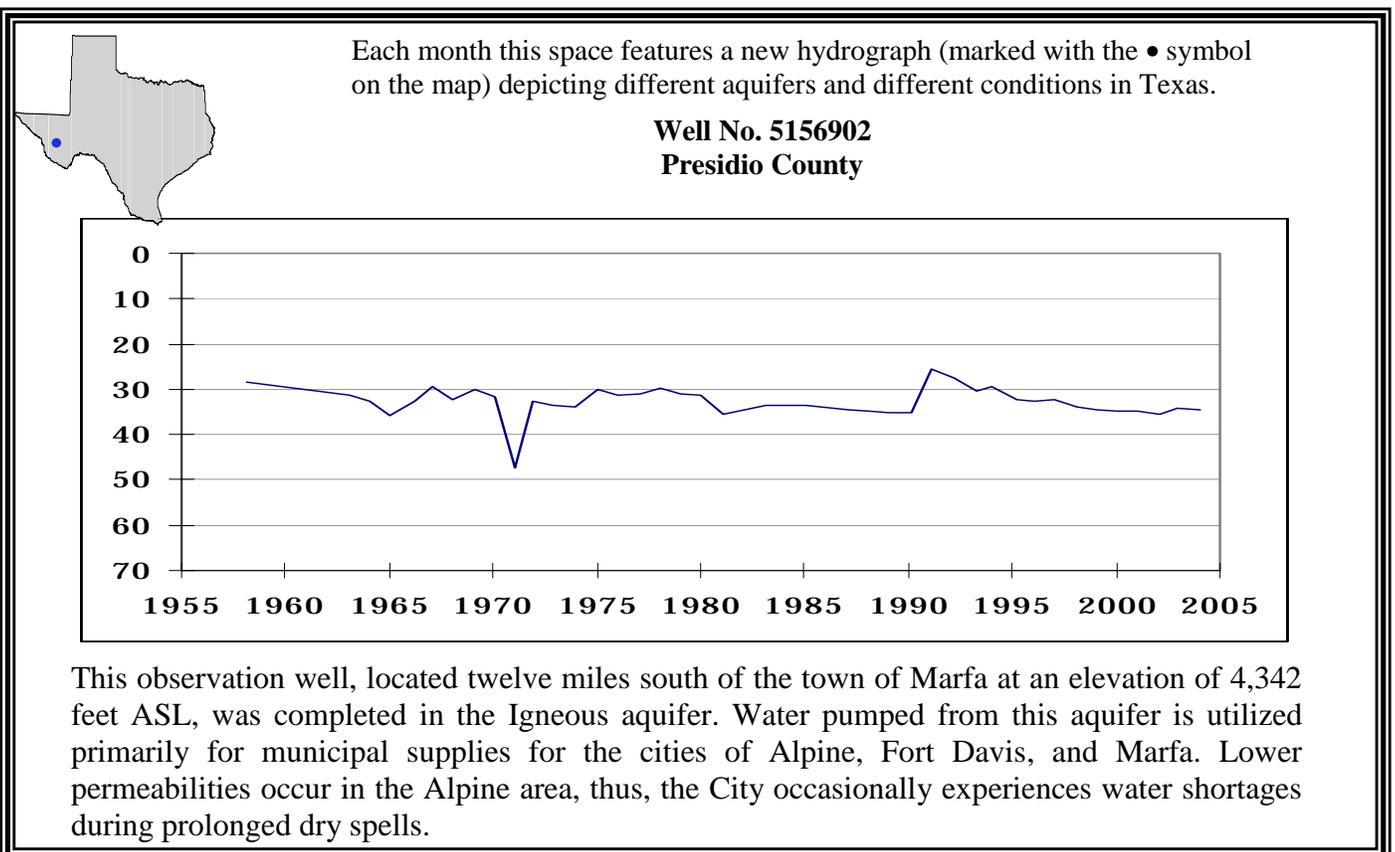


The late July water-level measurement in this Edwards (BFZ) aquifer well, elevation 731 feet above sea level, was 44.40 feet below land surface. This was 0.70 foot below last month's measurement, 3.60 feet above last year's measurement, and 15.22 feet above the initial measurement recorded in 1962



The late July water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 95.09 feet below land surface. This measurement was 5.10 feet below last month's measurement, 12.48 feet above last year's measurement, and 13.84 feet below the initial measurement recorded in 1965.

### ***HYDROGRAPH OF THE MONTH***



**July 31, 2004**

Water levels increased in three key monitoring wells since the beginning of July, ranging from 0.3 feet in the Near Hurst well, Tarrant County (Paluxy aquifer) to 0.9 feet in the El Paso Well, El Paso County (Bolson deposits) and Alief well, Harris County (Evangeline aquifer), and decreased in four key monitoring wells, ranging from 0.6 feet in the Southwest Castro County well (Ogallala aquifer) to 8.5 feet in the Gatesville Well, Coryell County (Trinity aquifer).

*TEXAS WATER DEVELOPMENT BOARD*

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